

All pathways were enriched in this study.

Ingenuity Canonical Pathways	log(<i>P-value</i>)	Proteins
Ephrin Receptor Signaling	10.3	CDC42,CRKL,GNAI1,GNAI3,GNAS,GNB1,GNB2,NRAS,RAC1,RAP1A,RAP2B,RRAS2,SDCBP
fMLP Signaling in Neutrophils	10.3	CDC42,GNAI1,GNAI3,GNAS,GNB1,GNB2,NRAS,RAC1,RAP1A,RAP2B,RRAS2
CCR3 Signaling in Eosinophils	8.79	GNAI1,GNAI3,GNAS,GNB1,GNB2,NRAS,RAC1,RAP1A,RAP2B,RRAS2
Axonal Guidance Signaling	8.78	CDC42,CHMP1A,CRKL,GNAI1,GNAI3,GNAS,GNB1,GNB2,MMP17,NRAS,NRP1,RAC1,RAP1A,RAP2B,ROBO1,RRAS2,SDCBP
G Beta Gamma Signaling	8.72	CDC42,GNAI1,GNAI3,GNAS,GNB1,GNB2,NRAS,RAP1A,RAP2B,RRAS2
CXCR4 Signaling	8.61	CDC42,GNAI1,GNAI3,GNAS,GNB1,GNB2,NRAS,RAC1,RAP1A,RAP2B,RRAS2
α -Adrenergic Signaling	8.53	GNAI1,GNAI3,GNAS,GNB1,GNB2,NRAS,RAP1A,RAP2B,RRAS2
Mechanisms of Viral Exit from Host Cells	8.51	CHMP2A,CHMP3,CHMP4A,PDCD6IP,TSG101,VPS25,VPS4A
IL-8 Signaling	7.8	CDC42,GNAI1,GNAI3,GNAS,GNB1,GNB2,NRAS,RAC1,RAP1A,RAP2B,RRAS2
Thrombin Signaling	7.64	CDC42,GNAI1,GNAI3,GNAS,GNB1,GNB2,NRAS,RAC1,RAP1A,RAP2B,RRAS2
G α i Signaling	7.4	GNAI1,GNAI3,GNAS,GNB1,GNB2,NRAS,RAP1A,RAP2B,RRAS2
GNRH Signaling	7.33	CDC42,GNAI1,GNAI3,GNAS,GNB1,NRAS,RAC1,RAP1A,RAP2B,RRAS2
Cardiac Hypertrophy Signaling	6.99	CDC42,GNAI1,GNAI3,GNAS,GNB1,GNB2,NRAS,RAC1,RAP1A,RAP2B,RRAS2
SAPK/JNK Signaling	6.95	CDC42,CRKL,GNB1,NRAS,RAC1,RAP1A,RAP2B,RRAS2
Glioma Invasiveness Signaling	6.8	CDC42,NRAS,RAC1,RAP1A,RAP2B,RRAS2,TIMP1
Ephrin B Signaling	6.76	CDC42,GNAI1,GNAI3,GNAS,GNB1,GNB2,RAC1

Apelin Endothelial Signaling Pathway	6.55	AQP2,GNAI1,GNAI3,GNAS,NRAS,RA P1A,RAP2B,RRAS2
Endocannabinoid Developing Neuron Pathway	6.52	GNAI1,GNAI3,GNB1,NRAS,RAC1,RA P1A,RAP2B,RRAS2
P2Y Purigenic Receptor Signaling Pathway	6.21	GNAI1,GNAI3,GNB1,GNB2,NRAS,RA P1A,RAP2B,RRAS2
Role of NFAT in Regulation of the Immune Response	6.13	GNAI1,GNAI3,GNAS,GNB1,GNB2,NR AS,RAP1A,RAP2B,RRAS2
Opioid Signaling Pathway	5.87	CDC42,GNAI1,GNAI3,GNAS,GNB1,N RAS,RAC1,RAP1A,RAP2B,RRAS2
Leukocyte Extravasation Signaling	5.87	CDC42,CRKL,EZR,GNAI1,GNAI3,MM P17,RAC1,RAP1A,TIMP1
Colorectal Cancer Metastasis Signaling	5.84	CDC42,GNAS,GNB1,GNB2,MMP17,N RAS,RAC1,RAP1A,RAP2B,RRAS2
Natural Killer Cell Signaling	5.83	CDC42,COL18A1,HSPA2,NRAS,RAC1 ,RAP1A,RAP2B,RRAS2,ULBP3
Aggrin Interactions at Neuromuscular Junction	5.61	CDC42,NRAS,RAC1,RAP1A,RAP2B,R RAS2
Integrin Signaling	5.58	ARF3,CAPN7,CDC42,CRKL,NRAS,RA C1,RAP1A,RAP2B,RRAS2
Role of NFAT in Cardiac Hypertrophy	5.48	GNAI1,GNAI3,GNAS,GNB1,GNB2,NR AS,RAP1A,RAP2B,RRAS2
Regulation of Cellular Mechanics by Calpain Protease	5.43	CAPN7,EZR,NRAS,RAP1A,RAP2B,RR AS2
Antiproliferative Role of Somatostatin Receptor 2	5.4	GNB1,GNB2,NRAS,RAP1A,RAP2B,RR AS2
Systemic Lupus Erythematosus In T Cell Signaling Pathway	5.39	CDC42,EZR,GNAI1,GNAI3,NRAS,RA C1,RAP1A,RAP2B,RRAS2
GDNF Family Ligand- Receptor Interactions	5.33	CDC42,NRAS,RAC1,RAP1A,RAP2B,R RAS2
Macropinocytosis Signaling	5.33	CDC42,NRAS,RAC1,RAP1A,RAP2B,R RAS2
Cholecystokinin/Gastrin- mediated Signaling	5.33	CDC42,IL1RN,NRAS,RAC1,RAP1A,R AP2B,RRAS2
Chemokine Signaling	5.3	GNAI1,GNAI3,NRAS,RAP1A,RAP2B, RRAS2
HGF Signaling	5.28	CDC42,CRKL,NRAS,RAC1,RAP1A,RA P2B,RRAS2
Renal Cell Carcinoma Signaling	5.26	CDC42,NRAS,RAC1,RAP1A,RAP2B,R RAS2
IL-3 Signaling	5.23	CRKL,NRAS,RAC1,RAP1A,RAP2B,RR AS2

Actin Nucleation by ARP-WASP Complex	5.23	CDC42,NRAS,RAC1,RAP1A,RAP2B,RAS2
LPS-stimulated MAPK Signaling	5.11	CDC42,NRAS,RAC1,RAP1A,RAP2B,RAS2
Hepatic Fibrosis Signaling Pathway	5.05	CDC42, COL18A1, GNAI1, GNAI3, IL1RN, NRAS, RAC1, RAP1A, RAP2B, RRAS2, TIMP1
RhoGDI Signaling	4.95	CDC42, EZR, GNAI1, GNAI3, GNAS, GNB1, GNB2, RAC1
STAT3 Pathway	4.92	GHR, IFNAR1, NRAS, RAC1, RAP1A, RAP2B, RRAS2
PTEN Signaling	4.9	CDC42, GHR, NRAS, RAC1, RAP1A, RAP2B, RRAS2
IL-1 Signaling	4.85	GNAI1, GNAI3, GNAS, GNB1, GNB2, TOLLIP
Phospholipase C Signaling	4.81	CDC42, GNAS, GNB1, GNB2, NRAS, RAC1, RAP1A, RAP2B, RRAS2
Virus Entry via Endocytic Pathways	4.59	CDC42, NRAS, RAC1, RAP1A, RAP2B, RAS2
FAK Signaling	4.57	CAPN7, NRAS, RAC1, RAP1A, RAP2B, RAS2
PAK Signaling	4.52	CDC42, NRAS, RAC1, RAP1A, RAP2B, RAS2
Paxillin Signaling	4.5	CDC42, NRAS, RAC1, RAP1A, RAP2B, RAS2
Role of MAPK Signaling in Promoting the Pathogenesis of Influenza	4.47	ATP6V1E1, ATP6V1G1, NRAS, RAP1A, RAP2B, RRAS2
ErbB4 Signaling	4.43	NCSTN, NRAS, RAP1A, RAP2B, RRAS2
Actin Cytoskeleton Signaling	4.4	CDC42, CRKL, EZR, NRAS, RAC1, RAP1A, RAP2B, RRAS2
NGF Signaling	4.34	CDC42, NRAS, RAC1, RAP1A, RAP2B, RAS2
Role of Tissue Factor in Cancer	4.3	CDC42, NRAS, RAC1, RAP1A, RAP2B, RAS2
Tec Kinase Signaling	4.29	CDC42, GNAI1, GNAI3, GNAS, GNB1, GNB2, RAC1
Rac Signaling	4.2	CDC42, NRAS, RAC1, RAP1A, RAP2B, RAS2
Tumor Microenvironment Pathway	4.19	MMP17, NRAS, RAC1, RAP1A, RAP2B, RAS2, TNC
Synaptogenesis Signaling Pathway	4.18	APOE, CDC42, CRKL, NRAS, RAB5C, RAC1, RAP1A, RAP2B, RRAS2

NF- κ B Signaling	4.18	GHR,IL1RN,NRAS,RAP1A,RAP2B,RRAS2,UBE2N
Neurotrophin/TRK Signaling	4.14	CDC42,NRAS,RAP1A,RAP2B,RRAS2
Ferroptosis Signaling Pathway	4.14	ARF3,GPX4,NRAS,RAP1A,RAP2B,RRAS2
Molecular Mechanisms of Cancer	4.08	CDC42,GNAI1,GNAI3,GNAS,NCSTN,NRAS,RAC1,RAP1A,RAP2B,RRAS2
Synaptic Long Term Depression	4.07	GNAI1,GNAI3,GNAS,NRAS,RAP1A,RAP2B,RRAS2
Endothelin-1 Signaling	4.07	GNAI1,GNAI3,GNAS,NRAS,RAP1A,RAP2B,RRAS2
p70S6K Signaling	4.04	GNAI1,GNAI3,NRAS,RAP1A,RAP2B,RRAS2
Estrogen Receptor Signaling	4.04	GNAI1,GNAI3,GNAS,GNB1,MMP17,NRAS,RAP1A,RAP2B,RRAS2
Signaling by Rho Family GTPases	4.04	CDC42,EZR,GNAI1,GNAI3,GNAS,GNB1,GNB2,RAC1
Oncostatin M Signaling	3.99	NRAS,RAP1A,RAP2B,RRAS2
PEDF Signaling	3.98	NRAS,RAC1,RAP1A,RAP2B,RRAS2
VEGF Family Ligand-Receptor Interactions	3.93	NRAS,NRP1,RAP1A,RAP2B,RRAS2
Gap Junction Signaling	3.91	GNAI1,GNAI3,GNAS,NRAS,RAP1A,RAP2B,RRAS2
Insulin Receptor Signaling	3.91	CRKL,NRAS,PTPRF,RAP1A,RAP2B,RRAS2
PDGF Signaling	3.88	CRKL,NRAS,RAP1A,RAP2B,RRAS2
Regulation of IL-2 Expression in Activated and Anergic T Lymphocytes	3.81	NRAS,RAC1,RAP1A,RAP2B,RRAS2
CCR5 Signaling in Macrophages	3.74	GNAI1,GNAI3,GNAS,GNB1,GNB2
Melanoma Signaling	3.73	NRAS,RAP1A,RAP2B,RRAS2
ErbB Signaling	3.72	CDC42,NRAS,RAP1A,RAP2B,RRAS2
Melanocyte Development and Pigmentation Signaling	3.7	GNAS,NRAS,RAP1A,RAP2B,RRAS2
UVC-Induced MAPK Signaling	3.7	NRAS,RAP1A,RAP2B,RRAS2
Relaxin Signaling	3.69	GNAI1,GNAI3,GNAS,GNB1,GNB2,RAP1A
Epithelial Adherens Junction Signaling	3.66	CDC42,NRAS,RAC1,RAP1A,RAP2B,RRAS2
Bladder Cancer Signaling	3.66	MMP17,NRAS,RAP1A,RAP2B,RRAS2
TGF- β Signaling	3.66	CDC42,NRAS,RAP1A,RAP2B,RRAS2

Apoptosis Signaling	3.6	CAPN7,NRAS,RAP1A,RAP2B,RRAS2
Glucocorticoid Receptor Signaling	3.56	GHR,HSPA2,IFNAR1,IL1RN,NRAS,RAC1,RAP1A,RAP2B,RRAS2,TSG101
HMGB1 Signaling	3.56	CDC42,NRAS,RAC1,RAP1A,RAP2B,RRAS2
CNTF Signaling	3.54	NRAS,RAP1A,RAP2B,RRAS2
Chronic Myeloid Leukemia Signaling	3.53	CRKL,NRAS,RAP1A,RAP2B,RRAS2
PPAR Signaling	3.53	IL1RN,NRAS,RAP1A,RAP2B,RRAS2
Neuregulin Signaling	3.52	CRKL,NRAS,RAP1A,RAP2B,RRAS2
Glioblastoma Multiforme Signaling	3.48	CDC42,NRAS,RAC1,RAP1A,RAP2B,RRAS2
Cancer Drug Resistance By Drug Efflux	3.48	NRAS,RAP1A,RAP2B,RRAS2
T Cell Receptor Signaling	3.48	NRAS,RAC1,RAP1A,RAP2B,RRAS2
CDK5 Signaling	3.44	GNAS,NRAS,RAP1A,RAP2B,RRAS2
Germ Cell-Sertoli Cell Junction Signaling	3.43	CDC42,NRAS,RAC1,RAP1A,RAP2B,RRAS2
Endometrial Cancer Signaling	3.42	NRAS,RAP1A,RAP2B,RRAS2
Role of PI3K/AKT Signaling in the Pathogenesis of Influenza	3.4	CRKL,GNAI1,GNAI3,IFNAR1
IL-2 Signaling	3.4	NRAS,RAP1A,RAP2B,RRAS2
SPINK1 General Cancer Pathway	3.4	NRAS,RAP1A,RAP2B,RRAS2
Thrombopoietin Signaling	3.34	NRAS,RAP1A,RAP2B,RRAS2
Cardiac Hypertrophy Signaling (Enhanced)	3.34	GHR,GNAI1,GNAI3,GNAS,GNB1,IFNAR1,NRAS,RAP1A,RAP2B,RRAS2
ErbB2-ErbB3 Signaling	3.32	NRAS,RAP1A,RAP2B,RRAS2
Fc Epsilon RI Signaling	3.26	NRAS,RAC1,RAP1A,RAP2B,RRAS2
Renin-Angiotensin Signaling	3.26	NRAS,RAC1,RAP1A,RAP2B,RRAS2
PPAR α /RXR α Activation	3.25	GHR,GNAS,NRAS,RAP1A,RAP2B,RRAS2
Acute Phase Response Signaling	3.25	APOH,IL1RN,NRAS,RAP1A,RAP2B,RRAS2
Role of JAK1 and JAK3 in γ c Cytokine Signaling	3.24	NRAS,RAP1A,RAP2B,RRAS2
B Cell Receptor Signaling	3.23	CDC42,NRAS,RAC1,RAP1A,RAP2B,RRAS2
PI3K/AKT Signaling	3.21	GHR,IFNAR1,NRAS,RAP1A,RAP2B,RRAS2
Reelin Signaling in Neurons	3.19	APOE,CDC42,CRKL,RAC1,RAP1A

G Protein Signaling Mediated by Tubby	3.19	GNAS,GNB1,GNB2
GM-CSF Signaling	3.17	NRAS,RAP1A,RAP2B,RRAS2
Regulation Of The Epithelial Mesenchymal Transition By Growth Factors Pathway	3.14	CDC42,NRAS,RAC1,RAP1A,RAP2B,RRAS2
ERK5 Signaling	3.12	NRAS,RAP1A,RAP2B,RRAS2
HER-2 Signaling in Breast Cancer	3.12	ARF3,CDC42,NRAS,RAP1A,RAP2B,RRAS2
Sertoli Cell-Sertoli Cell Junction Signaling	3.12	CDC42,NRAS,RAC1,RAP1A,RAP2B,RRAS2
14-3-3-mediated Signaling	3.11	NRAS,PDCD6IP,RAP1A,RAP2B,RRAS2
IL-6 Signaling	3.11	IL1RN,NRAS,RAP1A,RAP2B,RRAS2
Non-Small Cell Lung Cancer Signaling	3.1	NRAS,RAP1A,RAP2B,RRAS2
Adrenomedullin signaling pathway	3.09	GNAS,IL1RN,NRAS,RAP1A,RAP2B,RRAS2
Angiopoietin Signaling	3.08	NRAS,RAP1A,RAP2B,RRAS2
Estrogen-Dependent Breast Cancer Signaling	3.08	NRAS,RAP1A,RAP2B,RRAS2
FcγRIIB Signaling in B Lymphocytes	3.05	NRAS,RAP1A,RAP2B,RRAS2
IL-15 Signaling	3.05	NRAS,RAP1A,RAP2B,RRAS2
Gα12/13 Signaling	3.04	CDC42,NRAS,RAP1A,RAP2B,RRAS2
NF-κB Activation by Viruses	3.03	NRAS,RAP1A,RAP2B,RRAS2
G-Protein Coupled Receptor Signaling	3.03	GNAI1,GNAI3,GNAS,NRAS,RAP1A,RAP2B,RRAS2
Thyroid Cancer Signaling	3.01	NRAS,RAP1A,RAP2B,RRAS2
MSP-ROn Signaling In Cancer Cells Pathway	3.01	HGFAC,NRAS,RAP1A,RAP2B,RRAS2
PI3K Signaling in B Lymphocytes	3	NRAS,RAC1,RAP1A,RAP2B,RRAS2
HIF1α Signaling	2.99	HSPA2,MMP17,NRAS,RAP1A,RAP2B,RRAS2
Role of MAPK Signaling in the Pathogenesis of Influenza	2.99	NRAS,RAP1A,RAP2B,RRAS2
ERK/MAPK Signaling	2.99	CRKL,NRAS,RAC1,RAP1A,RAP2B,RRAS2
Androgen Signaling	2.98	GNAI1,GNAI3,GNAS,GNB1,GNB2
mTOR Signaling	2.98	CDC42,NRAS,RAC1,RAP1A,RAP2B,RRAS2

FLT3 Signaling in Hematopoietic Progenitor Cells	2.97	NRAS,RAP1A,RAP2B,RRAS2
Apelin Adipocyte Signaling Pathway	2.97	GNAI1,GNAI3,GPX4,GSTM1
JAK/Stat Signaling	2.95	NRAS,RAP1A,RAP2B,RRAS2
Xenobiotic Metabolism General Signaling Pathway	2.94	GSTM1,NRAS,RAP1A,RAP2B,RRAS2
Prolactin Signaling	2.93	NRAS,RAP1A,RAP2B,RRAS2
IL-4 Signaling	2.91	NRAS,RAP1A,RAP2B,RRAS2
Phagosome Maturation	2.9	ATP6V1E1,ATP6V1G1,CTSL,RAB5C,TSG101
BMP signaling pathway	2.89	NRAS,RAP1A,RAP2B,RRAS2
Ceramide Signaling	2.8	NRAS,RAP1A,RAP2B,RRAS2
Acute Myeloid Leukemia Signaling	2.8	NRAS,RAP1A,RAP2B,RRAS2
Intrinsic Prothrombin Activation Pathway	2.79	COL18A1,F13B,THBD
Prostate Cancer Signaling	2.78	NRAS,RAP1A,RAP2B,RRAS2
PKC θ Signaling in T Lymphocytes	2.78	NRAS,RAC1,RAP1A,RAP2B,RRAS2
G α q Signaling	2.75	CDC42,GNAS,GNB1,GNB2,RAC1
CREB Signaling in Neurons	2.73	GHR,GNAI1,GNAI3,GNAS,GNB1,GNB2,NRAS,RAP1A,RAP2B,RRAS2
Granulocyte Adhesion and Diapedesis	2.68	EZR,GNAI1,GNAI3,IL1RN,MMP17
UVA-Induced MAPK Signaling	2.64	NRAS,RAP1A,RAP2B,RRAS2
VEGF Signaling	2.64	NRAS,RAP1A,RAP2B,RRAS2
Erythropoietin Signaling Pathway	2.61	NRAS,RAC1,RAP1A,RAP2B,RRAS2
Mouse Embryonic Stem Cell Pluripotency	2.56	NRAS,RAP1A,RAP2B,RRAS2
T Cell Exhaustion Signaling Pathway	2.55	IFNAR1,NRAS,RAP1A,RAP2B,RRAS2
Telomerase Signaling	2.53	NRAS,RAP1A,RAP2B,RRAS2
IGF-1 Signaling	2.53	NRAS,RAP1A,RAP2B,RRAS2
G α s Signaling	2.5	GNAS,GNB1,GNB2,RAP1A
Agranulocyte Adhesion and Diapedesis	2.48	EZR,GNAI1,GNAI3,IL1RN,MMP17
Glioma Signaling	2.46	NRAS,RAP1A,RAP2B,RRAS2
MSP-RON Signaling In Macrophages Pathway	2.44	NRAS,RAP1A,RAP2B,RRAS2

Extrinsic Prothrombin Activation Pathway	2.44	F13B,THBD
Sphingosine-1-phosphate Signaling	2.39	CDC42,GNAI1,GNAI3,RAC1
Systemic Lupus Erythematosus In B Cell Signaling Pathway	2.39	IFNAR1,NRAS,RAC1,RAP1A,RAP2B,RRAS2
Semaphorin Signaling in Neurons	2.38	CDC42,NRP1,RAC1
NRF2-mediated Oxidative Stress Response	2.37	GSTM1,NRAS,RAP1A,RAP2B,RRAS2
Xenobiotic Metabolism Signaling	2.36	GSTM1,HS6ST2,NRAS,RAP1A,RAP2B,RRAS2
Role of NANOG in Mammalian Embryonic Stem Cell Pluripotency	2.35	NRAS,RAP1A,RAP2B,RRAS2
Regulation of the Epithelial-Mesenchymal Transition Pathway	2.33	NCSTN,NRAS,RAP1A,RAP2B,RRAS2
Clathrin-mediated Endocytosis Signaling	2.32	APOE,CDC42,RAB5C,RAC1,TSG101
Synaptic Long Term Potentiation	2.24	NRAS,RAP1A,RAP2B,RRAS2
Protein Kinase A Signaling	2.18	GNAI1,GNAI3,GNAS,GNB1,GNB2,PTPRF,RAP1A
Glutathione Redox Reactions I	2.16	GPX4,GSTM1
LPS/IL-1 Mediated Inhibition of RXR Function	2.15	APOE,FABP3,GSTM1,HS6ST2,IL1RN
Role of Macrophages, Fibroblasts and Endothelial Cells in Rheumatoid Arthritis	2.12	IL1RN,NRAS,RAC1,RAP1A,RAP2B,RRAS2
Hereditary Breast Cancer Signaling	2.11	NRAS,RAP1A,RAP2B,RRAS2
Ovarian Cancer Signaling	2.1	NRAS,RAP1A,RAP2B,RRAS2
GPCR-Mediated Integration of Enteroendocrine Signaling Exemplified by an L Cell	2.1	GNAI1,GNAI3,GNAS
Systemic Lupus Erythematosus Signaling	2.08	IL1RN,NRAS,RAP1A,RAP2B,RRAS2
Corticotropin Releasing Hormone Signaling	2.07	GNAI1,GNAI3,GNAS,RAP1A
Regulation of eIF4 and p70S6K Signaling	1.86	NRAS,RAP1A,RAP2B,RRAS2

Fcγ Receptor-mediated Phagocytosis in Macrophages and Monocytes	1.8	CDC42,EZR,RAC1
Coagulation System	1.77	F13B,THBD
Amyotrophic Lateral Sclerosis Signaling	1.76	CAPN7,RAB5C,RAC1
Breast Cancer Regulation by Stathmin1	1.75	GNB1,GNB2,NRAS,RAC1,RAP1A,RAP2B,RRAS2,TSG101
IL-17 Signaling	1.72	NRAS,RAP1A,RAP2B,RRAS2
Senescence Pathway	1.71	CAPN7,NRAS,RAP1A,RAP2B,RRAS2
Inhibition of Matrix Metalloproteases	1.71	MMP17,TIMP1
Hepatic Fibrosis / Hepatic Stellate Cell Activation	1.69	COL18A1,COL5A2,IFNAR1,TIMP1
Production of Nitric Oxide and Reactive Oxygen Species in Macrophages	1.66	APOE,CDC42,RAC1,RAP1A
GPCR-Mediated Nutrient Sensing in Enteroendocrine Cells	1.6	GNAI1,GNAI3,GNAS
Ephrin A Signaling	1.53	CDC42,RAC1
LXR/RXR Activation	1.5	APOE,APOH,IL1RN
GP6 Signaling Pathway	1.49	COL18A1,COL5A2,RAC1
Amyloid Processing	1.48	CAPN7,NCSTN
EIF2 Signaling	1.48	NRAS,RAP1A,RAP2B,RRAS2
Atherosclerosis Signaling	1.48	APOE,COL18A1,IL1RN
FXR/RXR Activation	1.46	APOE,APOH,IL1RN
Endocannabinoid Neuronal Synapse Pathway	1.44	GNAI1,GNAI3,GNB1
Iron homeostasis signaling pathway	1.41	ATP6V1E1,ATP6V1G1,CYBRD1
cAMP-mediated signaling	1.4	GNAI1,GNAI3,GNAS,RAP1A
Maturity Onset Diabetes of Young (MODY) Signaling	1.35	APOE,APOH
Huntington's Disease Signaling	1.34	CAPN7,GNB1,GNB2,HSPA2
Cardiac β-adrenergic Signaling	1.33	GNAS,GNB1,GNB2

fMLP, N-formylmethionyl-leucyl-phenylalanine; CCR3, C-C chemokine receptor 3; CXCR4, C-X-C Motif Chemokine Receptor 4; IL-8, interleukin 8; IL-3, interleukin 3; IL-1, interleukin 1; IL-2, interleukin 2; IL-6, interleukin 6; IL-15, interleukin 15; IL-4, interleukin 4; IL-17, interleukin 17; GNRH, gonadotropin-releasing hormone; SAPK/JNK, stress-activated protein kinases / jun amino-terminal kinases; NFAT, nuclear factor of activated T cells; HGF, hepatocyte growth factor; ARP-WASP, actin-related proteins-Wiskott-Aldrich syndrome protein; MAPK, mitogen activated protein kinase; STAT3, signal transducer and activator of transcription 3; PTEN, phosphatase

and tensin homolog; FAK, focal adhesion kinase; PAK, p21-activated kinase; ErbB4, receptor protein-tyrosine kinase erbB-4; NGF, nerve growth factor; PEDF, pigment epithelium-derived factor; VEGF, vascular endothelial-derived growth factor; PDGF, platelet derived growth factor; CCR5, C-C chemokine receptor 5; UVC, ultraviolet-C; TGF- β , transforming growth factor- β ; HMGB1, high mobility group proteins B1; CNTF, ciliary neurotrophic factor; PPAR, peroxisome proliferators-activated receptor; CDK5, cyclin—dependent kinase 5; SPINK1, serine peptidase inhibitor, Kazal type-1; PPAR α /RXR α peroxisome proliferator-activated receptor alpha / retinoid X receptor alpha; JAK1, Janus kinase-1; JAK3, Janus kinase-3; P13K/AKT, phosphatidylinositol-3 kinase/cellular homolog of the viral oncogene v-Akt; GM-CSF, granulocyte-macrophage colony-stimulating factor; ERK5, extracellular signal regulated kinase 5; HER-2, human epidermal growth factor receptor 2; NF- κ B, nuclear factor kappa-B; MSP-RON, macrophage-stimulating protein-recepteur d'origine nantais; HIF-1 α , hypoxia inducible factor-1 α ; mTOR, mammalian target of rapamycin; FLT3, fms-like tyrosine kinase 3; JAK/STAT, Janus kinase/signal transducer and activator of tran-ions; BMP, bone morphogenetic protein; PKC θ , protein kinase C θ ; CREB, cyclic AMP response-element binding protein; IGF-1, insulin-like growth factor 1; NRF2, nuclear factor E2-related factor 2; LPS, endotoxin; RXR, retinoid X receptor; GPCR, G-protein-coupled receptor; LXR, liver X receptor; GP6, glycoprotein 6; EIF2, eukaryotic initiation factor 2; FXR, farnesoid X receptor; cAMP, cyclic adenosine monophosphate.